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Final Report

Portal Project, Phase 1
Lewis & Clark County, Montana
P.R. 2057-G

January, 1987

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Final Report

Portal Project, Phase 1
Lewis & Clark County, Montana
P.R. 2057-G

January, 1987

Prepared for: Mr. Richard Juntunen, Chief
Abandoned Mine Reclamation
Bureau
Department of State Lands
1625 11th Ave.
Helena, MT 59620

Prepared by: L.C. Hanson Company
Consulting Engineers
P.O. Box 299
Helena, MT 59624

Project Inspector: Robert Ross, P.E.



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I. Introduction

A. Project Objectives

The Phase 1 Portal Project was undertaken to eliminate the public safety hazards resulting from unreclaimed mine openings at several abandoned hardrock mines in Lewis & Clark County, Montana. Closure of dangerous shafts and adits through backfilling, bulkhead installation, and/or fencing was accomplished to eliminate accidental entry.

B. Project Location

The project covered eleven sites located in three mining districts, near Helena, Montana. Legal descriptions are listed below and site locations are shown on the vicinity map contained herein.

Helena Mining District

Gunn Site	T9N R4W Sec. 3 SW
Hubbard - Cycle Site	T9N R4W Sec. 2 NE
Stiller Site	T9N R5W Sec. 13 NE
Tangen Site	T10N R4W Sec. 35 SE

Scratchgravel Hill Mining District

Anders - Julia Site	T10N R4W Sec. 2 NE
John G. Mine Site	T11N R4W Sec. 26 NE
Lexington Site	T11N R4W Sec. 35 SE
Lovely - Oompaul Site	T11N R4W Sec. 35 E
North Saddle Site	T11N R4W Sec. 36 SW
South Saddle Site	T10N R4W Sec. 1 NW

York Mining District

Golden Messenger Site	T11N R1W Sec. 4 SW
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C. History

Hardrock mining has taken place in Montana since 1862 and was essentially unregulated from a reclamation standpoint for over one hundred years. This resulted in thousands of hazardous shafts and adits in mining districts across the state.

A brief history of mining districts included in the Phase 1 Portal Project follows. Where production statistics are available for individual sites, they are noted.

Helena Mining District - Mineral production came mainly from placers in this area though several lode deposits were also mined. The U.S. Bureau of Mines credits the district with \$6.7 million for the period 1901 - 1958.

Scratchgravel Hills Mining District - In 1864 this area first became active. Production totals are estimated at \$2.4 million from 1901 - 1958.

Julia Mine - Closed down since 1927, this mine is said to have produced a moderate amount of ore containing silver, lead and gold.

Lexington Mine - Before smelters were built in Montana, this mine shipped ore worth \$250,000 to Swansea, Wales for refining. It has been closed down since 1880.

York Mining District - The Golden Messenger Mine was developed in 1899. A mill was built and burned in 1902. The present cyanide mill was built in 1913. 1927 - 1928 were the last years the mine was operated and it is reported to have produced 34,000 tons of ore with an average of \$6 to \$7 per ton in gold.

D. Site Description And Problems

The sites included in this project are located in or near residential areas, historic sites, close to public roads or in recreation areas. All mine openings threatened public safety. The shafts involved were of depth great enough to prevent unaided escape upon entry. Adits were reclaimed or bulkheaded to protect the curious from unsuspected dangers.

II. Description of Project Reclamation

A. Project Planning

Backfill was recommended for all mine openings to permanently eliminate the hazards. Many landowners refused to allow this, insisting instead on accessing bulkheads or fencing. These techniques do accomplish the goals of preventing accidental entry but are semi-permanent in nature and may require maintenance in the future.

B. Chronological History

Pre-Bid Conference	September 27, 1983
Bid Opening	October 6, 1983
Contract Award	October 7, 1983
Contract Awarded To:	

Excavating Service
P.O. Box 306
Belt, MT 59412
(406)277-3307

Pre-construction Meeting	November 7, 1983
Notice to Proceed	November 10, 1983
Began Work	November 14, 1983
Temporary Winter Shutdown	November 30, 1983
Resumed Work	April 17, 1984
Project Completed	June 4, 1984

C. Equipment

JD 350 C Dozer
Welder
Air Compressor & Jack Hammer
Cat D-3 Dozer
Concrete Ready-Mix Trucks

D. Construction Operations

The Contractor performed the following:

1. Backfilled 6 adits
2. Backfilled 17 shafts
3. Installed 1 culvert access pipe
4. Installed 1 cone shaped concrete plug
5. Installed 1 6'x 6' adit door
6. Installed 4 steel grates
(24'x 24', 20'x 20', 16'x 20', 16'x 16')
7. Stowed cyanide cans in backfilled adit
8. Installed barbed wire fence at 1 site
9. Revegetated all areas disturbed by construction activities

III. Cost Summary

A. Final Payment Request

A copy of the Final Payment Request is contained in Appendix A. That document contains the final costs at each site.

B. Change Order

The following Change Orders were executed during the course of the project:

1. Change Order #1 - Backfill additional adit and install additional fencing at Lexington site.
2. Change Order #2 - Stow cyanide containers and backfill two additional adits at the Golden Messenger site

C. Cost Per Site / Unit

The following summary describes the work performed (with estimated or measured quantities) and the total cost for each site:

- | | |
|---|-------------|
| 1. Anders-Julia Site | \$ 7,060.00 |
| a. Install 30"x 26' CMP, concrete headwall and backfill (50 c.y.) | |
| b. Install steel grate (24'x 24') | |
| c. Backfill 2 shafts (60 c.y.) | |
| d. Seed, fertilize & mulch | |
| 2. Lovely-Oompaul Site | \$ 3,810.00 |
| a. Install steel grate (20'x 20') | |
| b. Backfill 2 shafts (170 c.y.) | |
| c. Seed, fertilize & mulch | |
| 3. Gunn Site | \$ 1,094.00 |
| a. Backfill 1 shaft (98 c.y.) | |
| b. Seed, fertilize & mulch | |
| 4. Hubbard-Cycle Site | \$ 6,481.00 |
| a. Install steel grate (16'x 20') | |
| b. Install adit door (6'x 6') | |
| c. Backfill inclined shaft (70 c.y.) | |
| d. Seed, fertilize & mulch | |

5.	Tangen Site	\$ 4,018.00
	a. Install steel grate (16'x 16')	
	b. Backfill 4 shafts (246 c.y.)	
	c. Seed, fertilize & mulch	
6.	Stiller Site	\$ 780.00
	a. Backfill 1 adit (20 c.y.)	
	b. Backfill 1 shaft (140 c.y.)	
	c. Seed, fertilize & mulch	
7.	Golden Messenger Site	\$ 6,510.00
	a. Install cone & backfill shaft (80 c.y.)	
	b. Backfill 1 shaft (80 c.y.)	
	c. Backfill 2 adits (90 c.y.) (C.O. work)	
	d. Stow cyanide cans (C.O. work)	
	e. Seed, fertilize & mulch	
8.	John G. Mine Site	\$ 935.00
	a. Backfill 1 adit (45 c.y.)	
	b. Backfill 1 shaft (100 c.y.)	
	c. Seed, fertilize & mulch	
9.	South Saddle Site	\$ 2,275.00
	a. Backfill 1 adit (15 c.y.)	
	b. Backfill 2 shafts (435 c.y.)	
	c. Seed, fertilize & mulch	
10.	North Saddle Site	\$ 1,420.00
	a. Backfill 1 adit (60 c.y.)	
	b. Backfill 2 shafts (220 c.y.)	
	c. Seed, fertilize & mulch	
11.	Lexington Site	\$ 740.00
	a. Fencing including C.O work (86 l.f.)	

	Total Project Cost	\$ 35,123.00

V. Summary

A. Completed Reclamation

The required work was completed within the Contract time allowed.

The project resulted in complete plugging of some adits and shafts and limits access to other adits and shafts by installed grates, doors and fences. Revegetation of disturbed areas was also accomplished.

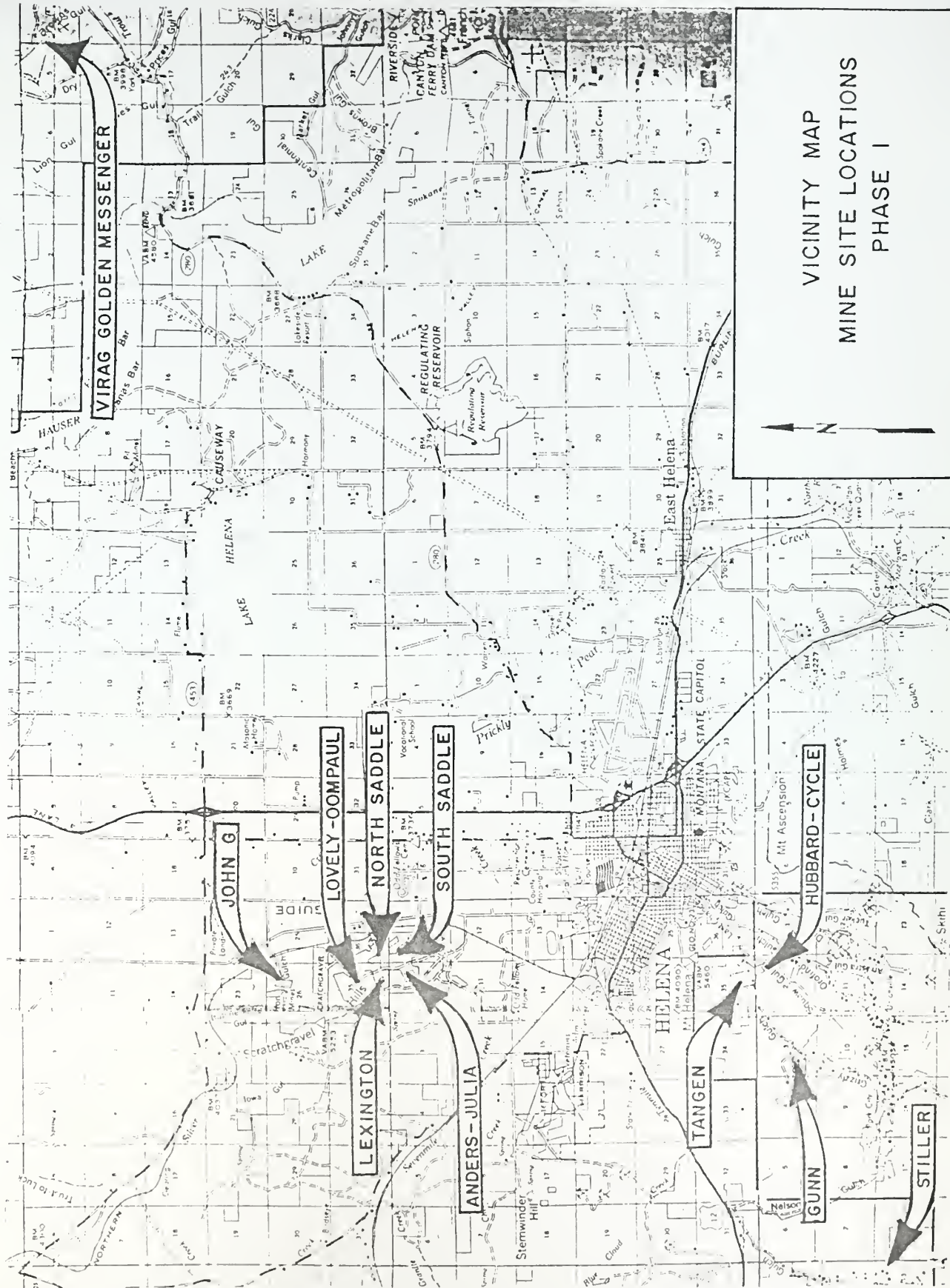
B. Comments

The Contractor completed the work as specified. Some equipment breakdowns and attempts to use equipment not suited for the work resulted in delays.

Monitoring of all sites should be undertaken periodically to insure all backfilling and fencing work and the revegetation efforts remain intact.

V. Slides

The slide log and slides are contained in Appendix B.



APPENDIX A

FROM April 16, 1984

 TO May 29, 1984

JUN 14 1984

 PROJECT NAME LEWIS AND CLARK COUNTY, MONTANA PORTAL PROJECT - PHASE 1

 LOCATION LEWIS & CLARK COUNTY, MT PROJ. NO. P.R. 2057-G

 NAME OF CONTRACTOR RENNICK EXCAVATING SERVICE ADDRESS BOX 306, BELT, MT 59412

CHANGE ORDERS			CONTRACT STATUS			
No.	Description	Amount	Total Amount	Completed Amount	Uncompleted Amount	Per Cent Complete
1	Additional Fencing & Backfill					
	One (1) Adit	650.00	33,473.00		0	100
2	Stow Cyanide Cans & Backfill					
	Two (2) Adits	1000.00			0	100
Total Change Orders			1,650.00	1,650.00	0	100
CONTRACT TO DATE INCLUDING CHANGE ORDERS			35,123.00	35,123.00	0	100

TOTAL RETAINAGE \$	COMPLETED TO DATE \$	35,123.00
SECURITIES ON DEPOSIT \$	PLUS MATERIALS ON SITE \$	
ADJUSTED RETAINAGE \$	TOTAL COMPLETED TO DATE \$	35,123.00
*For use only when securities are on deposit in lieu of 10% retainage.	*10% OR ADJUSTED RETAINAGE \$	0.00
	TOTAL AMOUNT EARNED TO DATE \$	35,123.00
	LESS PREVIOUS PAYMENTS \$	20,001.31
	AMOUNT DUE THIS PAYMENT \$	15,121.69
	LESS 1% TAX \$	151.22
	TOTAL DUE CONTRACT \$	14,970.47

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

 RENNIK EXCAVATING SERVICE
(Contractor)

 By Michael W. Rennick

 Date 6-7-84

RECOMMENDED BY:

 L. C. HANSON COMPANY
(Engineer)

 By James R. Salmer

 Date 6/13/84

Approved By:

DEPARTMENT OF STATE LANDS FOR THE DEPARTMENT OF ADMINISTRATION-STATE OF MONTANA

Owner

Michael Hill 6/14/84

ITEMIZATION OF QUANTITIES AND COSTS

ITEM	DESCRIPTION	QUANTITY	UNIT PRICE	WORK COMPLETED TO DATE	COST COMPLETED WORK	PERCENT COMPLETE
	ANDERS - JULIA	LUMP SUM	7060.00	100%	7,060.00	100
	LOVELY-ODMPAUL	LUMP SUM	3870.00	100%	3,810.00	100
	GUNN	LUMP SUM	1094.00	100%	1,094.00	100
	HUBBARD-CYCLE	LUMP SUM	6481.00	100%	6,481.00	100
	TANGEN	LUMP SUM	4018.00	100%	4,018.00	100
	STILLER	LUMP SUM	780.00	100%	780.00	100
	GOLDEN MESSENGER	LUMP SUM	5200.00	100%	5,200.00	100
	JOHN G. MINE	LUMP SUM	935.00	100%	935.00	100
	SOUTH SADDLE	LUMP SUM	2275.00	100%	2,275.00	100
	NORTH SADDLE	LUMP SUM	1420.00	100%	1,420.00	100
	LEXINGTON	LUMP SUM	400.00	100%	<u>400.00</u>	100
	TOTAL				\$33,473.00	

APPENDIX B

Phase 1 Portal Project
Helena & York Mining Districts, Lewis & Clark County
Slide Log

1.	July, 1983	Before:	Julia site - for backfill
2.	July, 1983	Before:	Julia site - for backfill
3.	June, 1984	After:	Julia shaft #1 - completed backfill, seeded fertilized & mulched
4.	June, 1984	After:	Julia shaft #2 - completed grate, seeded fertilized, & mulched
5.	June, 1984	After:	Julia shaft #3 - completed access pipe. seeded. fertilized & mulched
6.	June, 1984	After:	Julia shaft #4 - completed backfill, seeded, fertilized & mulched
7.	April, 1982	Before:	Golden Messenger Mill
8.	April, 1982	Before:	Golden Messenger Mill
9.	April, 1982	Before:	Golden Messenger Mill
10.	May, 1984	Before:	Golden Messenger Mill
11.	May, 1982	Before:	Golden Messenger site - shaft slated for cone installation
12.	April, 1984	During:	Golden Messenger shaft #2 - cone at edge of shaft
13.	April, 1984	During:	Golden Messenger shaft #2 - cone in shaft
14.	April, 1984	During:	Golden Messenger shaft #2 - cone in shaft, pipe to hold backfill
15.	April, 1984	During:	Golden Messenger shaft #2 - cone installation
16.	April, 1984	During:	Golden Messenger shaft #2 - cone installation
17.	April, 1984	During:	Golden Messenger shaft #2 - cone installation
18.	April, 1984	During:	Golden Messenger shaft #2 - cone installation, welding
19.	April, 1984	During:	Golden Messenger shaft #2 - cone installation, welding
20.	April, 1984	During:	Golden Messenger shaft #2 - cone installation, welding
21.	April, 1984	During:	Golden Messenger shaft #2 - cone installation, welding
22.	April, 1984	During:	Golden Messenger shaft #2 - cone installation, welding
23.	April, 1984	During:	Golden Messenger shaft #2 - pouring concrete into cone
24.	April, 1984	During:	Golden Messenger shaft #2 - pouring concrete into cone
25.	May, 1984	During:	Golden Messenger shaft #2 - curing concrete
26.	May, 1984	During:	Golden Messenger shaft #2 - curing concrete
27.	May, 1984	After:	Golden Messenger shaft #1 - completed

28.	May, 1984	After:	backfill, seeded, fertilized, & mulched Golden Messenger shaft #2 - completed backfill, seeded, fertilized, & mulched
29.	May, 1984	Before:	Golden Messenger adit - for stowing
30.	May, 1984	Before:	Golden Messenger adit - for stowing
31.	May, 1984	Before:	Golden Messenger Mine - cyanide can
32.	May, 1984	Before:	Golden Messenger Mine - counting cyanide cans
33.	May, 1984	Before:	Golden Messenger Mine - cyanide cans to be stowed in adit
34.	May, 1984	During:	Golden Messenger adit - stowing cans
35.	May, 1984	After:	Golden Messenger adit - backfilled
36.	May, 1984	After:	Golden Messenger adit - seeded, fertilized & mulched
37.	May, 1984	After:	Golden Messenger adit - seeded, fertilized & mulched
38.	May, 1984	After:	Golden Messenger adit - seeded, fertilized & mulched
39.	April, 1982	Before:	Gunn shaft - for backfill
40.	April, 1983	Before:	Gunn shaft - for backfill
41.	April, 1983	Before:	Gunn shaft - for backfill
42.	Dec., 1983	After:	Gunn shaft - backfilled
43.	May, 1984	After:	Gunn shaft - seeded, fertilized & mulched
44.	March, 1984	Before:	Hubbard/Cycle - view of mine
45.	March, 1984	Before:	Hubbard/Cycle - view of mine
46.	April, 1982	Before:	Hubbard/Cycle adit #1 - door site
47.	May, 1984	After:	Hubbard/Cycle adit #1 - door installed
48.	April, 1982	Before:	Hubbard/Cycle adit #2 - for backfill
49.	May, 1984	During:	Hubbard/Cycle adit #2 - backfilling
50.	May, 1984	During:	Hubbard/Cycle adit #2 - access road
51.	May, 1984	After:	Hubbard/Cycle adit #2 - backfilled, seeded, fertilized & mulched
52.	April, 1982	Before:	Hubbard/Cycle shaft #1 - grate site
53.	May, 1984	During:	Hubbard/Cycle shaft #1 & adit #1 - access road
54.	May, 1984	After:	Hubbard/Cycle shaft #1 - grate installed
55.	May, 1984	After:	Hubbard/Cycle shaft #1 - grate installed
56.	May, 1984	After:	Hubbard/Cycle shaft #1 - grate installed
57.	May, 1984	Before:	Hubbard/Cycle shaft #2 - for backfill
58.	Dec., 1983	Before:	Hubbard/Cycle shaft #2 - for backfill
59.	Dec., 1983	Before:	Hubbard/Cycle shaft #2 - access road
60.	Dec., 1983	Before:	Hubbard/Cycle shaft #2 - access road
61.	April, 1984	During:	Hubbard/Cycle shaft #2 - improved access road
62.	April, 1984	During:	Hubbard/Cycle shaft #2 - improved access road
63.	April, 1984	During:	Hubbard/Cycle shaft #2 - improved access road
64.	April, 1984	During:	Hubbard/Cycle shaft #2 - improved

			access road
65.	May, 1984	After:	Hubbard/Cycle shaft #2 - backfilled, seeded, fertilized & mulched
66.	May, 1984	After:	Hubbard/Cycle shaft #2 - backfilled, seeded, fertilized & mulched
67.	May, 1984	After:	Hubbard/Cycle shaft #2 - reclaimed access road
68.	May, 1984	After:	Hubbard/Cycle shaft #2 - reclaimed access road
69.	May, 1984	After:	Hubbard/Cycle - repaired fence at shaft #2
70.	June, 1983	Before:	John G. Mine - view of site
71.	June, 1983	Before:	John G. Mine - view from site
72.	June, 1983	Before:	John G. Mine adit - for backfill
73.	May, 1984	After:	John G. Mine adit - reclaimed site
74.	May, 1984	After:	John G. Mine adit & trench - reclaimed
75.	May, 1984	After:	John G. Mine adit & trench - reclaimed
76.	June, 1983	Before:	John G. Mine shaft - for backfill
77.	June, 1983	Before:	John G. Mine shaft - for backfill
78.	May, 1984	After:	John G. Mine shaft - reclaimed site
79.	May, 1984	After:	John G. Mine shaft - reclaimed site
80.	June, 1983	Before:	Lexington shaft - for fencing
81.	June, 1983	Before:	Lexington shaft - for fencing
82.	May, 1984	After:	Lexington shaft - completed fence
83.	June, 1983	Before:	North Saddle Site - view
84.	June, 1983	Before:	North Saddle Adit #1 - for backfill
85.	June, 1983	Before:	North Saddle Adit #1 - for backfill
86.	June, 1983	Before:	North Saddle Adit #1 - dump to be used for backfill
87.	May, 1984	After:	North Saddle Adit #1 - reclaimed site
88.	April, 1982	Before:	North Saddle Shaft #2 - for backfill
89.	June, 1983	Before:	North Saddle Shaft #2 - for backfill
90.	June, 1983	Before:	North Saddle Shaft #2 - for backfill
91.	June, 1983	Before:	North Saddle Shaft #2 - dump to be used for backfilling
92.	May, 1984	After:	North Saddle Shaft #2 - reclaimed
93.	June, 1983	Before:	North Saddle Shaft #3 - for backfill
94.	June, 1983	Before:	North Saddle Shaft #3 - for backfill
95.	May, 1984	After:	North Saddle Shaft #3 - reclaimed
96.	April, 1982	Before:	Oompaul shaft #1 - for backfill
97.	April, 1982	Before:	Oompaul shaft #3 - mine dump
98.	May, 1984	After:	Oompaul shaft #3 - grate installed
99.	June, 1983	Before:	South Saddle shaft #1 - for backfill
100.	May, 1984	After:	South Saddle shaft #1 - reclaimed
101.	June, 1983	Before:	South Saddle shaft #2 - for backfill
102.	June, 1983	Before:	South Saddle shaft #2 - for backfill
103.	April, 1982	Before:	South Saddle shaft #2 - for backfill
104.	June, 1983	Before:	South Saddle shaft #2 - dump to be used for backfill
105.	May, 1984	After:	South Saddle shaft #2 - cleaned up area
106.	May, 1984	After:	South Saddle shaft #2 - reclaimed site
107.	June, 1983	Before:	South Saddle adit - for backfill

108. June, 1983	Before:	South Saddle adit - for backfill
109. May, 1984	After:	South Saddle adit - backfilled
110. May, 1984	After:	South Saddle adit - backfilled
111. April, 1982	Before:	Stiller site - view
112. April, 1982	Before:	Stiller adit - for backfill
113. April, 1982	Before:	Stiller adit - for backfill
114. April, 1982	Before:	Stiller adit - for backfill
115. May, 1984	After:	Stiller adit - reclaimed
116. April, 1982	Before:	Stiller shaft - for backfill
117. May, 1984	After:	Stiller shaft - reclaimed
118. May, 1984	After:	Stiller shaft - reclaimed
119. April, 1982	Before:	Tangen shaft #1 - grate site
120. April, 1982	Before:	Tangen shaft #1 - grate site
121. April, 1984	Before:	Tangen shaft #1 - grate site
122. May, 1984	After:	Tangen shaft #1 - grate installed
123. May, 1984	After:	Tangen shaft #1 - grate installed
124. May, 1984	Before:	Tangen shaft #2 & #3 - for backfill
125. April, 1982	Before:	Tangen shaft #2 - for backfill
126. April, 1982	Before:	Tangen shaft #2 & #3 - dump to be used for backfill
127. May, 1984	After:	Tangen shaft #2 & #3 - reclaimed
128. May, 1984	After:	Tangen revegetation - seeding
129. April, 1982	Before:	Tangen shaft #4 - for backfill
130. April, 1982	Before:	Tangen shaft #4 - for backfill
131. April, 1984	After:	Tangen shaft #4 - backfilled
132. May, 1984	After:	Tangen shaft #4 - reclaimed
133. May, 1984	After:	Tangen shaft#4 - reclaimed
134. April, 1982	Before:	Tangen shaft #5 - for backfill
135. April, 1984	After:	Tangen shaft #5 - backfilled
136. April, 1984	After:	Tangen shaft #5 - backfilled
137. May, 1984	After:	Tangen shaft #5 - reclaimed
138. April, 1982	Before:	Tangen adit - lock to be installed on existing door
139. April, 1982	Before:	Tangen adit - lock to be installed on existing door
140. May, 1984	After:	Tangen adit - hasp & lock installed

